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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/743,531 | 06/05/2001 | Hirofumi Ohnari | 010006 | 4037 |

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EXAMINER

BUSHEY, CHARLES S

ART UNIT PAPER NUMBER

1724

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 09/743,531 | | OHNARI, HIROFUMI | |
| | Examiner | | Art Unit | |
| | Scott Bushey | | 1724 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-4 and 6-10 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-4 and 8-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 2, 8, and 9 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Morlin (Figs. 1a and 1b; Abstract; col. 1, lines 8-12, 49-59; col. 2, lines 11-24; col. 4, lines 16-19).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 4, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morlin taken together with Fontein et al.

Morlin (Figs. 1a and 1b; Abstract; col. 1, lines 8-12, 49-59; col. 2, lines 11-24; col. 4, lines 16-19) as applied above substantially discloses applicant's invention as recited by instant claims 3, 4, and 10, except for the pressurized liquid inlet means being in the form of plural tangential inlets that are provided adjacent to or near the gas-liquid mixture outlet.

Fontein et al (Figs. 2 and 4b; col. 3, lines 10-17, 38-41, 49-57, 72-75) disclose a mixing swirl chamber similar to that of Morlin, wherein it is disclosed to advantageously provide multiple tangential liquid inlets arranged adjacent or near the gas-liquid mixture outlet. It would have been obvious for an artisan at the time of the invention, to provide Morlin with multiple pressurized liquid inlets, in view of the specific teaching by Fontein et al that the multiple inlets offer the "advantage of effecting a more symmetrical rotation". Further, positioning the liquid inlets near the gas-liquid mixture outlet, as suggested by Fontein et al, would provide the greatest rotation shearing velocity near the mixture outlet, thus providing the most intense mixing of the phases immediately prior to discharge from the device.

Response to Arguments

5. Applicant's arguments filed July 6, 2006 have been fully considered but they are not persuasive.

With respect to the arguments drawn to the rejection under 35 USC 102(b) over Morlin, it is noted that the Examiner has clearly only relied upon the embodiment of Figs. 1a and 1b of the reference, as evidenced by the specific figures and text passages cited within the rejection statement above and in the previous Office action. One can only conclude that applicant's motivation for arguing that the Examiner is mixing different embodiments of Morlin is to obfuscate the issues within the instant prosecution.

With respect to the disclosure of the first embodiment of Morlin (Figs. 1a and 1b), the reference clearly teaches a container (2) having an interior space of frusto-conical shape, a tangential liquid inlet (1) into the interior space for imparting swirl to the fluids

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within the interior space, an axial inlet at one end of the interior space, said one end being "closed" to any flow other than the fluid entering through the axial inlet, and an outlet at the largest diameter of the interior space. It is noted and must be emphasized here that applicant's "one end" that is claimed as being "closed" is in fact no more "closed" than that of the Morlin reference. As is clear from each of applicant's drawings, the one end of the inventive interior space is clearly open to allow for axial inlet flow of gas. *The "one end" of applicant's invention is not physically "closed"*. The only manner in which applicant can legitimately claim that the "one end" of the frusto-conical interior space, or the "one axial end" of the interior space defined by a surface of rotation is "closed", is in a functional sense, i.e., no flow occurs through the "closed end" other than the axially flowing inlet gas. This is precisely the case in the Morlin reference (embodiment of Figs. 1a and 1b). In conclusion to this issue, instant claims 2, 8, and 9, as currently recited, must stand rejected over Morlin, since the one end of Morlin that facilitates axial inlet flow of fluid is "closed" to all other flows in the same manner as applicant's instant claims are supported by applicant's disclosure.

With respect to applicant's arguments that the rejection of claims 3, 4, and 10 does not include motivation or suggestion for the stated modification, one can only conclude that applicant has ignored the text of the rejection statement as set forth above and in the previous Office action. With respect to multiple tangential liquid inlets being provided to the interior space of the swirl chamber of Morlin, the Examiner has quoted a specific motivational statement directly from the text of the secondary reference (Fontein et al). While applicant may disagree with the motivational statement

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provided by the Examiner, alleging that one does not exists is an untenable position. Furthermore, with respect to the claimed positioning of the liquid inlets "near" or "adjacent" the mixture outlet opening, a clear motivational statement has also been provided in the rejection statement above and in the previous Office action. Also, the terms "near" or "adjacent" are relative terms that, without other phraseology more clearly defining the positioning of specific elements within a claimed device, cannot connote such specificity as to define over a single reference or combination of references teaching or suggesting the tangential inlets and the mixture outlet being connected to the same interior space.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Bushey whose telephone number is 571 272-1153. The examiner can normally be reached on M-Th 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Scott Bushey
Primary Examiner
Art Unit 1724


7-25-06

csb
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